



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/557,274	04/24/2000	Oscar E. Agazzi	36178/PQH/B600	8093
7590	05/19/2004		EXAMINER	
CHRISTOPHER C. WINSLADE MCANDREWS, HELD & MALLOY 500 W. MADISON STREET SUITE 3400 CHICAGO, IL 60661			LIU, SHUWANG	
		ART UNIT	PAPER NUMBER	
		2634	11	
DATE MAILED: 05/19/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	09/557,274	AGAZZI, OSCAR E.
	Examiner	Art Unit
	Shuwang Liu	2634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 01 March 2004.

2a) This action is **FINAL**.                    2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-8 and 15-22 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 1-8 and 15-22 is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All    b) Some \* c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.

4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.

5) Notice of Informal Patent Application (PTO-152)

6) Other: \_\_\_\_\_.

## DETAILED ACTION

### ***Response to Arguments***

1. Applicant's arguments filed on 03/01/04 have been fully considered but they are not persuasive. The Examiner has thoroughly reviewed Applicant's arguments but firmly believes that the cited reference reasonably and properly meet the claimed limitation as rejected.

Applicant's argument –The Applicants argued that "It is not clear which element of Trans the Examiner considers to be PCS (Physical Coding Sublayer) Module, but Applicants submit that Trans does not disclose a PCS module providing status signals to a PHY (Physical Layer) control module and the PHY control module generating control signals based those status signals."

Examiner's response – Trans discloses the Com2000 10/100/2000base-Tx Ethernet Physical Layer (PHY) (see 14 including 141 and 142 as shown in figure 1C and see figures 1D and 3 for details) including Ethernet Physical Coding Sub-layer (PCS) which is similar to the proposed PCS as defined by 802.3ab (column 58, lines 16-67). Trans further discloses the Com2000 10/100/1000base-TX Ethernet Physical Layer (PHY) Management interface which has dedicated status and control register (328) used to communicate Auto-Negotiation (329) information to the MII/GMII that includes the control, status, advertisement, link partner ability, and expansion register capability (also see Control register, Status register, Power register et al. in figure 1D and see column 60, lines 10-54). According to the IEEE 802.3 clauses 24 and 36, the PCS provides all services required by the GMII, including encoding (decoding) of octets

to (from) ten-bit code-groups (8B/10B for the 1000base-X) for communication with the underlying PMA, generating carrier sense and collision indications for use by PHY's half duplex clients, and managing the auto-negotiation process, and informing the management entity via the GMII when the PHY is ready for use (see page 924, IEEE Std. 802.3, 1998 Edition). Therefore, one skilled in the art should have clearly understood that the module including blocks 322, 323, 324, 325, 327, 331, 333 et al. as shown in figure 3 of Trans is PCS (Physical Coding Sublayer) Module. According to IEEE 802.3 clause 37, one skilled in the art should have also clearly understood that the module including block 328, 329, 330 as shown in figure 3 and Control register, Status register, Power register et al. as shown in figure 1D is the PHY control module generating control signals based the status signals provided by the Control and Status registers. Auto-Negotiation function, for example, is via the 100Base-X PCS Management Data Input/Output Interface (MDIO) defined in IEEE 802.3, clause 22. For example, the 0.11 bit for the Control register (Register 0) performs the Isolate function, 1=Electrically Isolate PHY from GMII and 0= Normal operation. Therefore, one skilled in the art should have clearly recognized that Trans discloses that a PCS module receiving control signals from a PHY control module.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claims 1-8 and 15-22 are rejected under 35 U.S.C. 102(e) as being anticipated by Trans (US 6,377,640).

As shown in figures 1A-1D, 3 and 10C-2, Trans discloses:

(1) regarding claims 1 and 15:

a method and a module for controlling operation of a multi-pair gigabit transceiver, the multi-pair gigabit transceiver comprising a Physical Layer Control module (PHY control) (328 and 329 in figure 3, or control reg, status reg, power reg in figure 1D), a Physical Coding Sublayer module (PCS module) (322, 323, 324, 325, 327, 331, 333 et al., column 58, lines 16-65) and a Digital Signal Processing module (DSP) (transceiver, figure 10C-2 or 342), the method comprising:

receiving at the PHY control module user-defined inputs from a serial Management module (323 and 324) and status signals from the DSP and the PCS (column 60, lines 1-54); and

generating, at the PHY control module, control signals responsive to the user-defined inputs and the status signals; and  
providing the control signal to the DSP and the PCS module (column 60, lines 1-54).

(2) regarding claims 2 and 16:

wherein the multi-pair gigabit transceiver further comprises an Auto-Negotiation module (329), the method further comprising:

receiving at the PHY control module a link control signal from the Auto-Negotiation module to start operation of the PCS module and the DSP (column 60, line 1-54).

(3) regarding claims 3 and 17:

wherein the multi-pair gigabit transceiver further comprises a Gigabit Medium Independent Interface (GMII) module (31), the method further comprising:

receiving at the PHY control module a transmit enable signal from the GMII module to start transmission of data packets (see figure 3 and figure 1D).

(4) regarding claims 4, 5, 18 and 19:

receiving a use-defined reset signal at the PHY control module; and

generating a control signal to reset the DSP and PCS module ( for example, 0.15 bit for the Control Register performs the reset function, 1=Core Reset, and 0=Normal Operation).

(5) regarding claims 6 and 20:

wherein the DSP (see figure 10C-2) comprises a set of echo cancellers and a set of near-end cross-talk (NEXT) cancellers, and wherein the control signals include echo and NEXT control signals to control convergence of the echo cancellers and NEXT cancellers (see figure 10b), respectively.

(6) regarding claims 7 and 21:

wherein the DSP comprises (see figure 10C-2) a multi-dimensional decision feedback equalizer (DFE) and wherein the control signals include DFE control signals to control convergence of the multi- dimensional DFE (see figure 10b and column 45, lines 1-31).

(7) regarding claims 8 and 22:

wherein the DSP comprises a timing recovery (TR) module and wherein the control signals include TR control signals to control convergence of the timing recovery module.

### ***Conclusion***

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action for claims 4, 5, 18 and 19. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shuwang Liu whose telephone number is (703) 308-9556.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin, can be reached at (703) 305-4714.

**Any response to this action should be mailed to:**

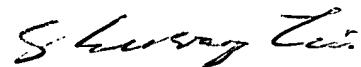
Commissioner of Patents and Trademarks  
Washington, D.C. 20231

**or faxed to:**

**(703) 872-9306 (for Technology Center 2600 only)**

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.



Shuwang Liu  
Primary Examiner  
Art Unit 2634

May 4, 2004